Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims:

1. (previously presented) A method for storing data on and retrieving data from a magnetic tape comprising:

receiving data when operating in a write mode;

passing magnetic tape across an electromagnetic head;

varying drive current to the electromagnetic head according to the data when operating in a write mode;

sensing current induced in the electromagnetic head when operating in a read mode;

sensing vibration imparted to a tape transport mechanism; and

adjusting position of the electromagnetic head according to the sensed vibration to maintain proper alignment with the magnetic tape so the magnetic tape continues to pass across the electromagnetic head.

2. (original) The method of claim 1 wherein sensing the vibration comprises generating an electrical signal according to the vibration experienced by a tape transport mechanism.

3. (original) The method of claim 1 wherein adjusting the position comprises:

generating a correction signal based on vibration information; and

positioning the electromagnetic head according to the correction signal.

4. (original) The method of claim 3 further comprising limiting vibration frequencies imparted to the tape transport mechanism in accordance with a frequency response of positioning the electromagnetic head.

5. (previously presented) The method of claim 3 wherein generating a correction signal comprises:

receiving a vibration indicative signal; and

modifying the vibration indicative signal through compensation in order to improve a response of positioning the electromagnetic head.

6. (previously presented) The method of claim 3 wherein generating a correction signal comprises:

receiving a vibration indicative signal; and

modifying the vibration indicative signal through prediction in order to improve a response of positioning the electromagnetic head.

7. (previously presented) The method of claim 6 wherein modifying the vibration indicative signal through prediction comprises:

analyzing a spectral composition of the vibration indicative signal; and

predicting a future vibration value according to the spectral composition.

8. (original) The method of claim 1 further comprising:

sensing a position of the magnetic tape relative to the electromagnetic head; and

adjusting the position of the electromagnetic head according to the sensed position of the magnetic tape.

9. (original) The method of claim 1 further comprising precluding variations in the drive current to the electromagnetic head when the sensed vibration exceeds a pre-established rate of change.

10. (previously presented) An electromagnetic head assembly comprising:

electromagnetic head:

vibration sensor capable of sensing vibration imparted to the electromagnetic head assembly; and

head positioning unit capable of adjusting a position of the electromagnetic head according to the sensed vibration to maintain proper alignment with a magnetic tape so the magnetic tape continues to pass across the electromagnetic head.

11. (original) The electromagnetic head assembly of claim 10 wherein the vibration sensor is attached to the electromagnetic head assembly and is capable of generating a vibration indicative signal.

12. (original) The electromagnetic head assembly of claim 10 wherein the head positioning unit comprises:

correction signal generator capable of generating a correction signal based on vibration information received from the vibration sensor; and

head position actuator capable of positioning the electromagnetic head according to the correction signal.

13. (previously presented) The electromagnetic head assembly of claim 12 further comprising a vibration limiter capable of limiting vibration frequencies of a chassis whereon the electromagnetic head is mounted in accordance with a frequency response of head positioning.

14. (previously presented) The electromagnetic head assembly of claim 12 wherein the correction signal generator comprises:

vibration signal receiver capable of receiving a vibration indicative signal from the vibration sensor; and

vibration signal processor capable of modifying the vibration indicative signal by applying compensation in order to improve a response of head positioning.

15. (previously presented) The electromagnetic head assembly of claim 12 wherein the correction signal generator comprises:

vibration signal receiver capable of receiving a vibration indicative signal from the vibration sensor; and

vibration signal processor capable of modifying the vibration indicative signal by applying prediction in order to improve a response of head positioning.

16. (previously presented) The electromagnetic head assembly of claim 15 wherein the vibration signal processor comprises:

spectrum analysis unit capable of analyzing a spectral composition of the vibration indicative signal; and

prediction unit capable of predicting a future vibration value according to the spectral composition.

17. (original) The electromagnetic head assembly of claim 10 further comprising:

tape position sensor capable of generating a tape position signal according to the position of the magnetic tape wherein the head positioning unit further is capable of adjusting the position of the electromagnetic head according to the tape position signal.

18. (previously presented) The electromagnetic head assembly of claim 10 further comprising a comparison unit capable of generating a signal that precludes variations in a drive current to the electromagnetic head when the sensed vibration exceeds a pre-established rate of change.

19. (previously presented) A magnetic tape drive comprising:

tape transport mechanism for transporting magnetic tape;

interface module capable of generating a head drive signal according to received data;

electromagnetic head capable of generating a magnetic field according to the head drive signal;

accelerometer that senses vibration imparted to the tape transport mechanism in a control axis; and

head position control system capable of adjusting a position of the electromagnetic head along the control axis according to the sensed vibration so the magnetic tape does not stop but continues to move with respect to the electromagnetic head.

20. (original) The magnetic tape drive of claim 19 wherein the accelerometer is attached

to the tape transport mechanism and is capable of generating a vibration indicative signal according to vibration along the control axis.

21. (original) The magnetic tape drive of claim 19 wherein the head position control system comprises:

correction signal generator capable of generating a correction signal based on the vibration indicative signal received from the accelerometer; and

head position actuator capable of positioning the electromagnetic head according to the correction signal.

22. (original) The magnetic tape drive of claim 21 further comprising an isolation mount capable of limiting vibration frequencies of the tape transport mechanism in accordance with the frequency response of head positioning.

23. (original) The magnetic tape drive of claim 21 wherein the correction signal generator comprises:

vibration signal receiver capable of receiving a vibration indicative signal from the accelerometer; and

vibration signal processor capable of modifying the vibration indicative signal by applying compensation in order to improve the response of the head position actuator.

24. (original) The magnetic tape drive of claim 21 wherein the correction signal generator comprises:

vibration signal receiver capable of receiving a vibration indicative signal from the accelerometer; and

vibration signal processor capable of modifying the vibration indicative signal by applying prediction in order to improve the response of the head position actuator.

25. (original) The magnetic tape drive of claim 24 wherein the vibration signal processor comprises:

analog-to-digital converter that creates a digital representation of the vibration indicative signal;

memory capable of storing instructions; digital signal processor capable of executing instruction sequences; and

digital signal processing instruction sequences stored in the memory comprising: spectrum analysis instruction sequence that, when executed by the digital signal processor, minimally causes the processor to compute a transform of the digital representation, p2 prediction instruction sequence that, when executed by the digital signal processor, minimally causes the digital signal processor to compute a future value of the digital representation according to the transform, and digital-to-analog converter that creates an analog control signal according to the future value of the digital representation.

26. (original) The magnetic tape drive of claim 19 further comprising:

tape position sensor capable of generating a tape position signal according to the position of the magnetic tape wherein the head position control system further is capable of adjusting the position of the electromagnetic head according to the tape position signal.

27. (previously presented) The magnetic tape drive of claim 19 further comprising a comparator that generates a signal that precludes variations in a drive current to the electromagnetic head when a derivative of the sensed vibration exceeds a pre-established value.

28. (previously presented) A tape head positioning system comprising:

means for imparting information onto magnetic tape;

means for supporting the information imparting means;

means for sensing vibration applied to the supporting means; and

means for adjusting position of the information imparting means to compensate for potential errors induced by the vibration so the magnetic tape does not stop but continues to pass across the means for imparting information.

29. (original) The tape head positioning system of claim 28 wherein the vibration sensing means generates an electrical signal according to the vibration experienced by the supporting means.

30. (original) The tape head position system of claim 28 wherein the position adjusting means comprises:

means for generating a correction signal according to vibration sensed by the vibration sensing means; and

means for adjusting the position of the information imparting means according to the correction signal.

31. (previously presented) The tape head position system of claim 30 further comprising means for limiting vibration frequencies imparted to the supporting means in accordance with a frequency response of tape head positioning.

32. (previously presented) The tape head position system of claim 30 wherein the correction signal generating means comprises:

means for receiving a vibration indicative signal; and

means for modifying the vibration indicative signal through compensation in order to improve a response of tape head positioning.

33. (previously presented) The tape head position system of claim 30 wherein the correction signal generating means comprises:

means for receiving a vibration indicative signal; and

means for modifying the vibration indicative signal through prediction in order to improve a response of tape head positioning.

34. (previously presented) The tape head position system of claim 33 wherein the signal modifying means comprises:

means for analyzing a spectral composition of the vibration indicative signal; and

means for predicting a future vibration value according to the spectral composition.

35. (original) The tape head position system of claim 28 further comprising:

means for sensing the position of the magnetic tape; and

means for adjusting the position of the information imparting means according to the sensed position of the magnetic tape.

36. (previously presented) The tape head position system of claim 28 further comprising means for precluding variations in a drive current to the electromagnetic head when the sensed vibration exceeds a pre-established level or rate of change.